

Wreck Pond Watershed Monmouth County, NJ Coastal Storm Risk Management and Ecosystem Restoration

Public Information Meeting

USACE - New York District
December 17, 2014



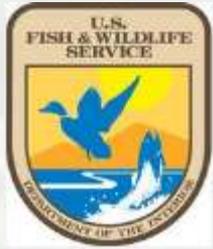
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Welcome!



Wreck Pond Partners



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Wreck Pond Watershed Comprehensive Restoration Approach

❑ Wreck Pond Watershed Restoration Action Plan - 2011

❑ Website and interactive map:

<http://www.nj.gov/dep/wreckpond/index.htm>



❑ \$1.224M CBT and 1985 Wastewater Treatment Bond Act Grant



- 14 MTDs
- Wreck Pond Watershed Restoration Implementation Plan
- Living Shoreline and Berm Conceptual Design
- Fish Study



Provisional Rainfall Beach Closure Policy

2006 Outfall
Extension
\$6M

Infrastructure
Assessment
EPA Grant
\$198k



Environmental
Infrastructure
Trust - \$525k

48 Hour Storm
Study and Wet
Weather
Monitoring

Removal of Provisional Rainfall
Closure Policy – Summer 2014



Restoration Projects

- ❑ Sluice Gate – FEMA \$130k
- ❑ Brown Avenue Berm Rebuild
- ❑ Emergency Spillway Excavation
- ❑ Monmouth County Dredging
- ❑ NJDOT-Restoration: 3 culverts-Route 34 in Wall
- ❑ Stream Bank Restoration Sites Freehold Soil Conservation District
- ❑ Education:
 - Rain Barrel Builds
 - Clean-Ups
 - Walking Tours
 - Wreck Pond Pals
- ❑ 2nd Outfall Project - USF&W \$2M, DEP \$608k, Spring Lake \$915k
- ❑ Feasibility Study - USACE \$2.5M



USACE Wreck Pond Coastal Storm Risk Management Feasibility Study



Wreck Pond Watershed Monmouth County, NJ Coastal Storm Risk Management Overview

- Study Authority/History
- Study Area
- Watershed Problems
- Corps Study Process
- Preliminary Alternatives
- Study Constraints
- Schedule
- Questions?



Study Authority

- Resolution of the U.S. House of Representatives Committee on Transportation and Infrastructure (Docket 2737), adopted 26 October 2005:
 - Authorized the Corps to “*investigate flood damage reduction, environmental restoration and protection, and related purposes, with special emphasis on Wreck Pond, Monmouth County, New Jersey, including Black Creek and associated waters.*”

- January 2013 – Public Law 113-2 Sandy Disaster Relief Appropriations (“Sandy Bill”)
 - Provided \$2.5M in Federal Funds to initiate and complete the Wreck Pond Feasibility Study at full Federal expense.
 - Provides construction authorization upon HQ approval of the feasibility study.

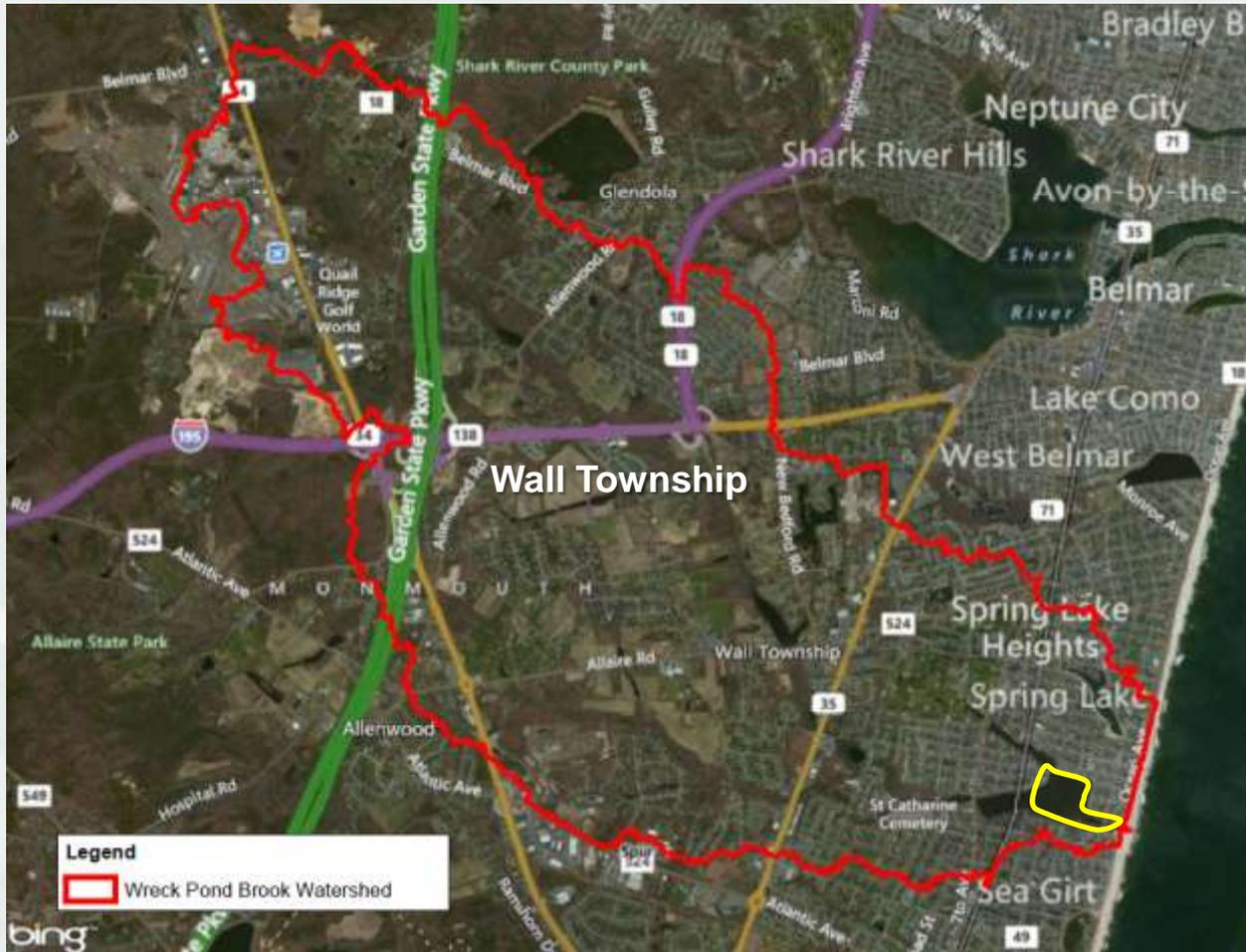


Study History

- **August 2010 – Reconnaissance Report Completed**
 - Determined Federal Interest and recommended “...to proceed into the feasibility phase to develop a comprehensive watershed management plan for the investigation of erosion and sediment reduction, streambank stabilization, ecosystem restoration, flood damage reduction and related issues in the Wreck Pond Watershed.”
- **Letter of Support – NJDEP Office of Water Monitoring and Standards, March 14, 2012**
 - Project Management Plan (Scope of Work for the feasibility study) Initiated.
- **October 2012 – Hurricane Sandy breached dune between Wreck Pond and Atlantic Ocean.**
- **January 2013 – Public Law 113-2 Sandy Disaster Relief Appropriations (“Sandy Bill”)**
- **September 2013 – Feasibility Cost Sharing Agreement (FCSA) Executed**



Wreck Pond Watershed



Problems Identified

PUBLIC CONCERNS

- Flooding – Outfall drains slow and the pond overflows during heavy rainfall.
- Storm Surge – Dune breach during Hurricane Sandy has increased the risk of damages.
- Beach Closures – Poor water quality from the pond after rainfall events.
- Limited/no fish passage between the ocean and the pond.
- High stream velocities have caused the destabilization of streambanks in the watershed.
- Erosion of streambanks had resulted in the loss of riparian vegetation and wetlands.
- Sedimentation in pond.
- Eutrophic waters and degraded habitat for fish, birds, and invertebrates.
- Significant loss of aquatic and wetland habitat.

PROBLEMS TO BE ADDRESSED BY THE STUDY

- Primary: Coastal storm risk management
- Secondary: Ecosystem restoration and flood risk management



Study Area and Reaches



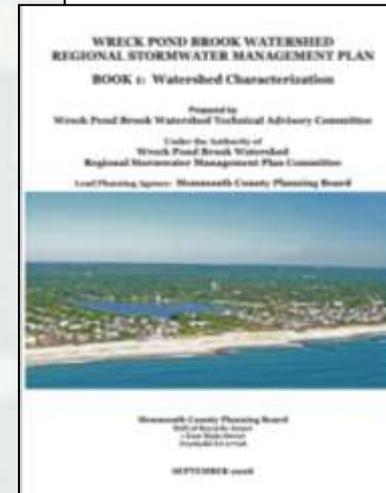
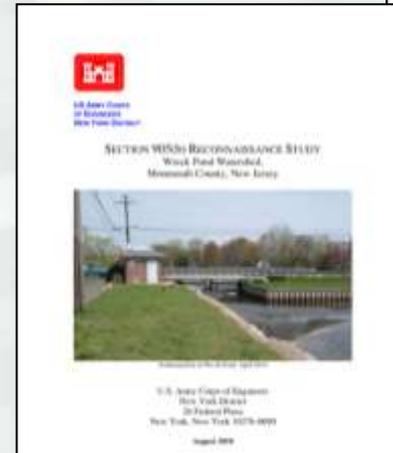
Study Reaches

- A. Coastal Section:** The outlet structure, beach and Wreck Pond east of the 1st Ave. Bridge. This area will include alternatives that restore the natural tidal exchange.
- B. Main Pond Area:** Wreck Pond, west of 1st Ave., east (downstream) of the railroad tracks and south (downstream) of the drop structure where Black Creek drains into Wreck Pond. This area is the primary target for restoration. Alternatives may include dredging, natural tidal exchange, modification to the 1st Ave Bridge to allow better flushing and riparian habitat improvements.
- C. Wreck Pond Brook (east):** Wreck Pond Brook, east of Route 71 and west of the railroad tracks. Alternatives may be similar, but smaller in scale to Section B. May also include modification of the conveyance under the railroad to allow better flushing.
- D. Black Creek**
- 1. East:** Black Creek, north (upstream) of drop structure and east (downstream) of railroad. Alternatives may include dredging, modification to the drop structure to allow better flushing and riparian habitat improvements.
 - 2. West:** Black Creek, west (upstream) of the railroad. Alternatives in this area could include dredging, modification of the conveyance under the railroad to allow better flushing and riparian habitat improvements.
- E. Wreck Pond Brook (west):** West (upstream) of Route 71. This area may be eliminated from further study, based on the work already completed by Monmouth County.



U.S. Army Corps' Study Relationship with Prior and On-going Studies, Reports, and Projects

- Water Quality Monitoring
- Living Shoreline and Berm Feasibility Study
- Watershed-Based Implementation Plan, Addendum to the Wreck Pond Watershed Regional Stormwater Management Plan
- Wreck Pond Watershed Microbial Source Tracking Study
- Wreck Pond Watershed Management Study
- Impacts of the Proposed Extension of the Wreck Pond Outfall on Nearshore Water Quality and Littoral Drift of Sand
- 2008 Wreck Pond River Herring Field Monitoring and Assessment Report
- Wreck Pond Restoration Measures



Feasibility Study Process



USACE Alternative Formulation Process for Feasibility Studies

- Identify alternatives
 - Coastal storm risk management
 - Flood risk management
 - Ecosystem restoration
- Screen alternatives
- Evaluate alternatives
 - Compare benefits of proposed alternatives against without-project conditions
 - Perform initial evaluation of environmental impacts
- Identify recommended plan (Tentatively Selected Plan)



USACE Alternative Formulation Process

(Continued)

No alternative's analysis is complete until the following evaluations are conducted:

1. Hydrology & Hydraulics - Completed
 - Model existing and improved conditions of the project area, including flows and water surface elevations
2. Cost Estimates
 - Screening based on quantities and cost estimates
3. Economic Justification for Plan Selection
 - Compare plans to the future without-project condition
 - Benefit cost ratio >1 , maximum net benefits
4. Environmental Impacts
 - Cultural resources, HTRW, biological and habitat considerations
5. Social Consequences
 - Community impacts (e.g. displacement, recreational feature/business loss or gains)



Wreck Pond Feasibility Phase - Gathering Existing Conditions

- Bathymetry
- Hydrology and Hydraulics
- Water Quality and Benthic Community Assessment
- Cultural Resources



Existing Conditions: Study Area Bathymetry



Existing Conditions: Hydrology

- Parameters measured within Wreck Pond and its ocean outfall:
 - **Tidal exchange** between Wreck Pond and the ocean
 - **Water levels** within Wreck Pond and the ocean
 - **Current** (direction and speed) within Wreck Pond
 - **Flow and velocity** at the outfall pipe



Existing Conditions: Hydrology and Hydraulics Modeling

- An U.S. Army Corps of Engineers approved model of Wreck Pond, the water bodies directly upland of Wreck Pond, and the offshore waters in the immediate vicinity of the ocean outfall was developed and calibrated.
- This calibrated model will be used to simulate the proposed conditions during the design of the alternatives. For example, this model can be used to understand/predict how the water levels or salinity regime in the pond change with alternative designs in place.
- Data used for H&H Modeling:
 - Hydrology
 - Bathymetry
 - Meteorological Data
 - Water Quality Data
(Salinity, Temperature,
Dissolved Oxygen, Conductivity)



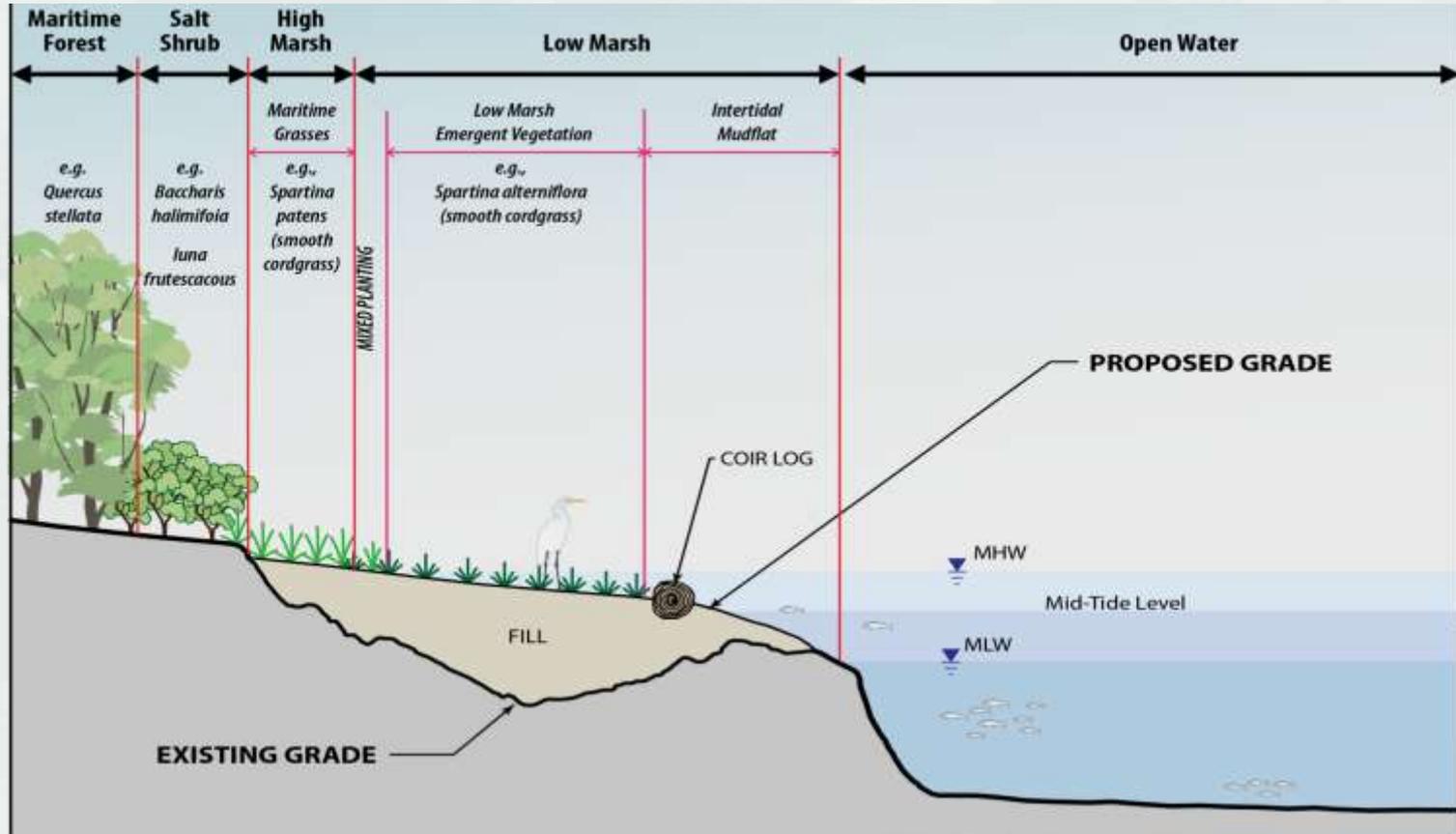
Preliminary Measure: Modifying the Tidal Exchange



Preliminary Measure: Establish Tidally-Influenced Wetland Communities



Preliminary Measure: Living Shorelines



Typical Living Shoreline Design



Preliminary Measure: In-water Structures

Constructed reef
(shell bags, spat-on-shell)



Prefabricated
Reef Structure



Preliminary Measure: Dredge Wreck Pond



Preliminary Measure: Modify Drop Structures



Study Constraints:

Threatened and Endangered Species

- (SE-State Endangered, FT-Federally Threatened)
- Piping Plover (Status: SE, FT)
- Eastern Bog Turtle (Status: SE, FT)
- Seabeach Amaranth (Status: SE, FT)
- Swamp Pink (Status: SE, FT)
- Knieskern's Beaked-Rush (Status: SE, FT)
- Least Tern (Status: SE)



Study Constraints: Wetlands



Study Constraints: Other

- New Jersey Green Acres Lands
- HTRW and Spill Sites
- Cultural Resources
- Overlap with existing Beach Erosion Control Project (Beachfill)
- Infrastructure Crossings:
 - Railroad
 - State Route 71
 - 1st Avenue Bridge
- Balancing the water resource solutions of the complex system
 - Coastal storm risk management
 - Flood risk management
 - Ecosystem restoration



Feasibility Study Schedule

Key Milestones

Execute FCSA	September 2013
Alternatives Milestone	April 2015
Tentatively Selected Plan	July 2016
Draft Report	October 2016
Final Report	January 2017



Public Participation

- **Comment Period – Tonight**
- **Written Comments – Postcards**
- **Contacts:**
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